

AIRPLANE FLIGHT MANUAL SUPPLEMENT

FOR

PIPER MODEL PA-28-151 CHEROKEE

MODIFIED IN ACCORDANCE WITH

ENGINE INSTALLATION

STC SA2969SW

*Installation of
160 HP Textron Lycoming model
O-320-D2A, -D2B, -D2C, -D3G,
-E3D (modified per STC SE8987SW)
or -E2A (modified per STC SE8987SW) Engines
and Sensenich model 74DM6-0-58 or -60 Propeller*

Serial Number 28-7615277

Registration Number N75270

This supplement is FAA approved and must be attached to the Piper PA-28-151 Airplane Flight Manual when the aircraft has been modified in accordance with STC SA2969SW.

The information contained in this document supplements or supersedes the Airplane Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this supplement, consult the basic Airplane Flight Manual.

Approved: _____

*S. Frances Cox, Manager
Special Certification Office, ASW-190
Federal Aviation Administration
Fort Worth, TX 76193-0190*

Date: _____

NOV 14 2006



RAM Aircraft Limited Partnership
7505 Karl May Drive
Waco, TX 76708

PIPER CHEROKEE MODEL PA-28-151 AIRPLANE FLIGHT MANUAL SUPPLEMENT

This document is a supplement to the original FAA approved Airplane Flight Manual. It must only be used for information regarding installation of 160 HP Lycoming engines on Piper model PA-28-151 performed in accordance with STC SA2969SW.

I. GENERAL

- | | | |
|----|-----------|---|
| 1. | ENGINE | Textron Lycoming model O-320-D2A, -D2B, -D2C, -D3G, -E3D (modified per STC SE8987SW), or -E2A (modified per STC SE8987SW) |
| 2. | PROPELLER | Sensenich model 74DM6-0-58 or -60 |

II. LIMITATIONS

- | | | |
|----|----------------------------|--|
| 1. | ENGINE LIMITS | Maximum continuous:
150 H.P. - 2650 rpm (O-320-E3D only)
160 H.P. - 2700 rpm (other models)
Take-off - (5 minutes):
160 H.P. - 2700 rpm (O-320-E3D only)
Take-off
160 H.P. - 2700 rpm (other models) |
| 2. | PROPELLER LIMITS | Static R.P.M. at maximum throttle setting:
not over 2450 rpm, not under 2350 rpm.

Diameter: Maximum = 74 inches
Minimum = 72 inches |
| 3. | ENGINE INSTRUMENT MARKINGS | Green arc = 2200 - 2650 rpm
Yellow arc = 2650 - 2700 rpm (O-320-E3D only)
Red radial = 2700 rpm |

III. PERFORMANCE

The performance of this airplane, equipped with a Textron Lycoming model O-320-D2A, -D2B, -D2C, -D3G, -E3D (modified per STC SE8987SW), or -E2A (modified per STC SE8987SW) engine, is equal to or better than the original F.A.A. approved performance.

IV. WEIGHT & BALANCE

No change to center-of-gravity limits.

V. PLACARDS

The following fuel placard should be located on top of wing next to each fuel filler cap in plain view.

AVGAS ONLY 100LL OR 100 BLUE OR GREEN
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United States Of America
Department of Transportation - Federal Aviation Administration
Supplemental Type Certificate

Number SA2969SW-D

This Certificate issued to RAM Aircraft, Limited Partnership
7505 Karl May Drive
Waco, TX 76708

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 3 of the Civil Air Regulations.

Original Product Type Certificate Number: 2A13
Make: Piper
Model: PA-28-151

Description of Type Design Change: Installation of a 160 hp Lycoming O-320-D2A, -D2B, -D2C, -D3G, -E2A, or -E3D engines on a Piper Model PA-28-151 in accordance with RAM Aircraft Drawing No. R16101, Revision E, dated October 11, 2005, or later FAA approved revision. FAA approved Airplane Flight Manual Supplement 1085, Revision A, dated November 14, 2006, or later FAA approved revision is required.

Limitations and Conditions: To be eligible for installation, the Lycoming O-320-E2A and O-320-E3D engines must be modified per STC SE8987SW-D. Instructions for Continued Airworthiness are contained in RAM Drawing Number 2662 dated December 12, 2005. The installer must determine whether this design change is compatible with previously approved modifications. If the holder agrees to permit another person to use this certificate to alter a product, the holder must give the other person written evidence of that permission.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: March 15, 1979

Date of issuance: April 05, 1979

Date reissued: October 8, 2001; September 20, 2002;
May 12, 2008

Date amended: April 24, 1980; October 21, 1981;
November 19, 1997; November 14, 2006, Rev. 4



By direction of the Administrator

(Signature)
S. Frances Cox, Manager
Special Certification Office,
Southwest Region

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

FAA-STC SA2706SW and SA2969SW

**Piper PA-28-140 and PA-28-151 Aircraft with
160 hp Lycoming Engines**

Drawing 2662

December 12, 2005

Notice

This document must be referenced on Block 8 of FAA form 337 and added to the aircraft permanent record as required by 14 CFR Part 91, §91.417(a)(2)(vi) when the reference FAA-STC modification is accomplished on eligible aircraft. This document complies with the requirements of 14 CFR Part 23, §23.1529, in accordance with 14 CFR Part 23, Appendix G.

Aircraft Serial No. 28-7615277

Aircraft Registration No. N75270

I. INTRODUCTION

This document provides instructions for continued airworthiness (ICA) for Piper PA-28-140 and PA-28-151 Aircraft models with modified Lycoming O-320-E2A engine in accordance with RAM Aircraft, L.P. Supplemental Type Certificate (STC) SA2706SW or SA2969SW.

Updates to this document are available from RAM's Customer Service Department or online as follows.

RAM Aircraft, Limited Partnership
P O Box 5219
7505 Karl May Drive
Waco, TX 76708

Phone: 254 752-8381
Fax: 254 752-3307

Website: www.ramaircraft.com

II. DESCRIPTION

The STC is to install the following Textron Lycoming engine models on Piper PA-28-140 and PA-28-151 aircraft models as a replacement engine.

- O-320-D2A
- O-320-D2B
- O-320-D2C
- O-320-D3G
- * • O-320-E3D and O-320-E2A engines modified in accordance with RAM Aircraft STC SE8987SW.

III. SPECIAL PROCEDURES

None

IV. SERVICING INFORMATION

The following document shall be followed for installation and operation of the Lycoming engines:

- FAA approved Piper PA-28-140 or PA-28-151 service manual.
- FAA approved Piper PA-28-140 or PA-28-151 parts manual.

V. MAINTENANCE INSTRUCTIONS

The following document shall be followed for Parts, Overhaul, and Maintenance of the Piper PA-28-140 or PA-28-151 aircraft models.

- FAA approved Piper PA-28-140 or PA-28-151 service manual.
- FAA approved Piper PA-28-140 or PA-28-151 parts manual.

VI. TROUBLESHOOTING

The following document shall be followed for Troubleshooting of the installation of the above mentioned engines.

- FAA approved Piper PA-28-140 or PA-28-151 service manual.

VII. REMOVAL AND REPLACEMENT

The following document shall be followed for removal and replacement of the above mentioned Lycoming engines on Piper PA-28-140 or PA-28-151 aircraft models.

- FAA approved Piper PA-28-140 or PA-28-151 service manual.

VIII. SPECIAL INSPECTION REQUIREMENTS

The following document shall be followed for inspection of the above mentioned Lycoming engines on Piper PA-28-140 or PA-28-151 aircraft models.

- FAA approved Piper PA-28-140 or PA-28-151 service manual.

IX. APPLICATION OF SPECIAL TREATMENTS

None

X. DATA

For installation on Piper PA-28-140 Aircraft per RAM Drawing R14001D, Revision H, dated September 26, 2005 or later FAA approved revision.

For installation on Piper PA-28-151 Aircraft per RAM Drawing R16101D, Revision E, dated October 11, 2005 or later FAA approved revision.

XI. SPECIAL TOOLS

None

XII. ADDITIONAL INFORMATION FOR COMMUTER CATEGORY AIRCRAFT
None

XIII. AIRWORTHINESS LIMITATIONS SECTION

Note: The airworthiness limitations section is FAA approved and specifies maintenance required under §§ 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

ENGINE LIMITATIONS

Propellers:

- a. Number of Propellers: 1
- b. Manufacturer: Sensenich
- c. Propeller Model Number: 74DM6-0-58 or -60
- e. Diameter: Maximum = 74 inches, Minimum = 72 inches
- g. Operating Limits:
 - (1) Maximum Continuous: 160 H.P. – 2700 rpm.
150 H.P. – 2650 rpm. (O-320-E3D only)
 - (2) Take-off : 160 H.P. – 2700 rpm.
160 H.P. – 2700 rpm. (5 minute, O-320-E3D only)

INSTRUMENT MARKINGS

Tachometer:

GREEN ARC	2200 – 2700 RPM
RED RADIAL	2700 RPM

Tachometer (O-320-E3D only):

GREEN ARC	2200 – 2650 RPM
YELLOW ARC	2650 – 2700 RPM
RED RADIAL	2700 RPM

PLACARDS

Install Fuel Placard on top of wing next to each fuel filler cap in plain view:

AVGAS ONLY 100LL OR 100 BLUE OR GREEN
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Rev.	Change Description	By	Approval	Date
B	Added O-320-D2A, -D2B, and -D2C engine eligibility.		Jack Riley Jr.	09/24/81
C	Added 74DM6-0-60 propeller, left off drawing by error.		Jack Riley Jr.	11/01/82
D	Added 160 hp modified O-320-E3D engine to eligibility, format updated. ECN 1848	SJ	Steve Johnson	05/23/97
E	Added O-320-E2A engine model to the eligibility; Revised Note 5 and Added Note 9 to the installation instructions ECN 4135	AJ	Jack Riley Jr.	10/11/05

ELIGIBILITY

The following Piper Aircraft Corp. aircraft models are eligible for this alteration:

- PA-28-151 Cherokee Warrior serial nos. 28-7415001 through 28-7715314.

The following Textron Lycoming engine models are eligible under this alteration for installation as the replacement engine.

- O-320-D2A
- O-320-D2B
- O-320-D2C
- O-320-D3G
- O-320-E3D and O-320-E2A engines modified in accordance with RAM Aircraft S.T.C. SE8987SW

The following Sensenich propeller models are eligible under this alteration for installation as the replacement propeller.

- model 74DM6-0-58
- model 74DM6-0-60

INSTALLATION INSTRUCTIONS

1. Remove the original engine and propeller per the instructions found in Piper model PA-28-151 Service Manual.

NOTE

It may be necessary to retain optional engine accessories (i.e., engine primer, oil filter, etc.) from the original engine for re-installation if such accessories are not on replacement engine.

2. Retain the original baffles, hoses, alternator, vacuum pump, spinner, spinner bulkhead, and all other airframe manufacturer's parts used with the engine for re-installation; repair or replace as needed.
3. If the original propeller will be re-installed, inspect the propeller; repair and balance as needed.
4. Inspect the condition of remaining components such as air filter, shock mounts, hoses, etc.; replace as needed.
5. Remark the tachometer as follows:

green arc	2200 to 2650 rpm
yellow arc	2650 to 2700 rpm (O-320-E3D Engine model installation only)
red radial	2700 rpm

NOTE
Remarking must be performed by an FAA-certified instrument shop.

6. Install the replacement engine and accessories per the instructions found in Piper model PA-28-151 Service Manual.
7. Install the replacement propeller per the instructions found in Piper model PA-28-151 Service Manual.
8. Install "100 or 100LL AVGAS ONLY" fuel placard at left and right fuel tank filler locations - RAM Aircraft Corp. part no. 1724-1, or equivalent.
9. Some O-320-E2A engines may have part number LW-14758 oil level gage assembly and some have part number LW-14759 oil level gage assembly. The installer must ensure the appropriate oil level gage assembly is used by either:
 - Retain the existing oil level gage assembly originally installed on the aircraft with the Lycoming O-320-E2A engine; or



TITLE: RAM Series 161 Engine Installation		DRAWING NO. R16101	REV. E
BY: Phillip T. Crawford, Jr.	SCALE: none	DATE: September 24, 1981	CHKD BY:
		PAGE: 1 of 2	

- Refer to applicable service manual for the Lycoming O-320-E2A engine as installed on Piper PA-28-140 aircraft.
10. Perform engine ground and flight functional checks per the instructions found in Piper model PA-28-151 Service Manual.

REQUIRED PAPERWORK

1. Fill out a new Engine Logbook and make appropriate Airframe Logbook entry with reference to the S.T.C. number and revision.
2. Complete FAA Form 337 and mail a copy to the local FAA Flight Standards District Office (FSDO) along with the supplied copy of the S.T.C. form and S.T.C. Usage Authorization letter or telegram.
3. Include an S.T.C. copy, original 337 form, and Airplane Flight Manual Supplement copy in the aircraft papers which should be carried in the aircraft at all times.

WARNING

Incorporation of this FAA Approved S.T.C. alteration requires specific written authorization from RAM Aircraft Corp. for each serial number aircraft modified. The S.T.C. approval is based on proprietary test data and information wholly owned by RAM Aircraft Limited Partnership

DRAWING NO. R16101	REV. E
DATE: Sept. 24, 1981	PAGE 2 of 2



July 28, 2025

*Aerotec Engines
Jason Crowell
740 Wingate Drive
Beaver Bank, NS B4G 0A6
Canada*

RE: STC USAGE AGREEMENT

Dear Sir:

This letter services as a one-time authorization per our installation center agreement to install a Lycoming Engine Model 0-320-E3D Engine S/N: L-36545-27A, on your Piper Model PA-28-151, Serial No. 28-7615277, Registration No. N75270.

*Modification is to be done in accordance with **RAM AIRCRAFT LIMITED PARTNERSHIP STC SA2969SW-D.***

Sincerely,

A handwritten signature in cursive script that reads "Lawrence P. Garcia".

*Lawrence P. Garcia
Inspection Dept.*